

REMARKS

Claims 15, 16, 18-21 and 23-28 are pending in this application. By this Amendment, claims 15 and 21 are amended and claims 1-14, 17, and 22 are canceled. Support for the amendments to the claims may be found, for example, in the original claims and in the specification at page 4, lines 20-21; page 6, lines 6-20; page 12, lines 15-20; page 13, lines 6-21; and page 40, Table 8 and Examples 3 and 4. No new matter is added.

Entry of the amendments is proper under 37 CFR §1.116 because the amendments:

(a) place the application in condition for allowance (for the reasons discussed herein); (b) do not raise any new issue requiring further search and/or consideration (as the amendments amplify issues previously discussed throughout prosecution); (c) do not present any additional claims without canceling a corresponding number of finally rejected claims; and (d) place the application in better form for appeal, should an appeal be necessary. The amendments are necessary and were not earlier presented because they are made in response to arguments raised in the final rejection. Entry of the amendments is thus respectfully requested.

In view of the foregoing amendments and following remarks, reconsideration and allowance are respectfully requested.

I. Rejections Under 35 U.S.C. §103

A. Joachimi, Aylward and Andrew

The Office Action rejects claims 1-23, 25 and 26 under 35 U.S.C. §103(a) over U.S. Patent Application Publication No. 2003/0125429 to Joachimi et al. (hereinafter "Joachimi") in view of U.S. Patent No. 5,998,119 to Aylward et al. (hereinafter "Aylward") in further view of U.S. Patent No. 3,459,575 to Andrew et al. (hereinafter "Andrew"). By this Amendment, claims 1-14, 17, and 22 are canceled, rendering their rejection moot. As to the remaining claims, Applicants respectfully traverse the rejection.

Independent claim 15 is amended to even more clearly distinguish over the applied references. Specifically, independent claim 15 is amended to recite (emphasis added):

A method for laser welding comprising:
 piling a resin workpiece being at least partly capable of laser-absorption onto a laser-transmissible resin workpiece for laser welding,
 wherein:
said resin workpiece is a whitish resin material piece of polycarbonate as a thermoplastic resin including a laser absorbent that absorbs the laser beam of the wavelength for the laser welding, or a whitish resin material piece of polycarbonate as a thermoplastic resin applying a laser-absorptive layer including a laser absorbent that absorbs the laser beam of the wavelength for the laser welding,
the laser-transmissible resin workpiece, whose transmissivity is at least 15% under 840 nm of laser light, exhibits an opaque hue of white and a whiteness degree: W_1 of the hue of at least 80, determined from the following numerical expression (I) using L-value, a-value and b-value of L*a*b color specification

$$W_1 = 100 - \sqrt{(100 - L)^2 + (a^2 + b^2)} \quad (I),$$

said laser-transmissible resin workpiece is molded out of a laser-transmissible resin composition for laser welding comprising 100 parts by weight of polycarbonate as a thermoplastic resin and 0.01 to 3 parts by weight of titanium oxide that has a density of at least 4 g/cm³, particles having an average particle size of 200 to 270 nm and oil absorption ranging from 15g to 23g per 100g thereof,
 surfaces of the titanium oxide particles are treated with a surface treatment agent that is selected from the group consisting of aluminum, alumina, aluminum-silicon, aluminum laurate, and aluminum stearate, and
 said laser-transmissible resin composition exhibits a hue of white; and
 irradiating a laser beam thereto to weld said resin workpiece and said laser-transmissible resin workpiece thermally.

The applied references disclose no such combination of features and one of ordinary skill in the art would have had no reason or rationale to combine the teachings of the applied references to obtain the laser transmissible resin composition or workpiece of claim 15.

The Office Action asserts that it would have been easily understood by one of ordinary skill in the art that the white color scheme was easily attainable merely by excluding the use

of any other dyes that would alter the already white color. See Office Action, pages 3 and 4. The Office Action further asserts that Joachimi discloses the general invention while Aylward and Andrew merely provide teachings that show how Joachimi can optimize the titanium oxide colorant in order to achieve a better final products and the teachings are not as disparate as Applicants claim. See Office Action, page 13. Applicants respectfully disagree.

Claim 15 recites a laser-transmissible resin composition that "exhibits a hue of white." In contrast, the Abstract of Joachimi states that dark-colored thermoplastic molding compositions are disclosed. As acknowledged by the Office Action, Joachimi is drawn primarily to darker work pieces and states that the primary problem with whitish work pieces is they tend to yellow and become aesthetically unpleasing. See Office Action, page 12. Furthermore, paragraph [0024] of Joachimi indicates that the reference provides a thermoplastic that is colored with at least two colorants such that a dark color molding composition results. See Joachimi, paragraph [0024], reproduced below for convenience (emphasis added).

The present invention therefore provides thermoplastic moulding compositions which are coloured with a combination of at least two colorants, such that a dark colour perception
(standard colour value Y<30, preferably Y<20, particularly preferably Y<10) of the moulding composition results and that in the visible light region (400 nm to 700 nm) at a layer thickness which can be at least within the range 0.4 to 5 mm, low or nil transmission (#10%) occurs, and in the wavelength region from 700 nm to 1200 nm, at least in spectral partial regions, transmission of >10% occurs upon irradiation with LASER light.

One of ordinary skill in the art at the time of the invention would recognize that a dark color molding composition is not white. Clearly, the mere exclusion of any other dyes that would alter the already white color of Joachimi (as proposed by the Office Action), improperly renders Joachimi unsatisfactory for its intended purpose. If a proposed modification would

render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984); see also MPEP §2143.01(V). Thus, Joachimi fails to disclose whitish thermoplastic compositions, as recited by claim 15.

Aylward discloses an imaging element comprising a paper substrate polyolefin polymer layer including pigment such as titanium oxide, but fails to disclose "a whitish resin material piece of polycarbonate," as recited in claim 15. See Aylward, col. 6, lines 20-21. Aylward also discloses that titanium oxide is chosen because of its high refractive index. See Aylward, col. 6, lines 25-26. One of ordinary skill in the art would recognize that titanium oxide having a high refractive index accomplishes whiteness as it reflects visible light ranging from 360 nm to 830 nm, instead of transmitting the light.

Aylward further discloses a titanium dioxide composition in a range of about 10 to about 50% by weight titanium oxide. However, claim 15, recites having "100 parts by weight of a thermal plastic resin" and "0.01 to 3 parts by weight of titanium oxide," which is substantially lower than 10%. If the amount of pigment suggested by Aylward is used for laser-welding, it would have a detrimental effect on the laser-welding. The increased amount of titanium oxide would result in increased absorption or reflective diffusion of the laser beam by titanium oxide when laser welding occurs and also the laser beam would not sufficiently transmit. See specification, page 4, lines 14-18. Thus, one of ordinary skill in the art looking to produce a resin composition that is *laser-transmissible* would have had no reason or rationale to combine the teachings of the applied references with any reasonable expectation of success of producing the laser transmissible resin of claim 15.

Andrew discloses a titanium pigment manufacture in which the pigment is used for coating compounds such as paints, enamels and lacquers and finishes and, thus, does not cure the above deficiencies of Joachimi and Aylward. Accordingly, Applicants respectfully

submit that one of ordinary skill in the art would have had no reason or rationale to combine the teachings of Joachimi with Aylward and Andrew to obtain the laser transmissible resin of claim 15.

For at least the foregoing reasons, Joachimi, Aylward and Andrew, considered either separately or in combination, would not have rendered obvious independent claim 15.

Claims 16, 18-21, 23, 25 and 26 variously depend from claim 15 and, thus, also would not have been rendered obvious by Joachimi, Aylward and Andrew. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

B. Joachimi, Aylward, Andrew and Savitski

The Office Action rejects claims 24, 27 and 28 under 35 U.S.C. §103(a) over Joachimi, Aylward and Andrew, as applied to claim 23 above, further in view of U.S. Patent No. 6,596,122 to Savitski et al. (hereinafter "Savitski"). Applicants respectfully traverse the rejection.

For at least the foregoing reasons, Joachimi, Aylward and Andrew, considered either separately or in combination, would not have rendered obvious the subject matter of independent claim 15. Savitski discloses a method of production of simultaneous lap and butt joints that directs electromagnetic radiation, but fails to cure the above deficiencies of Joachimi, Aylward and Andrew at least because it fails to disclose that titanium oxide particles are treated with a surface treatment agent selected from the group consisting of aluminum, alumina, aluminum-silicon, aluminum laurate and aluminum stearate. Therefore, Joachimi, Aylward, Andrew and Savitski, considered either separately or in combination, would not have rendered obvious claim 15.

Claim 15 would not have been rendered obvious by Joachimi, Aylward, and Savitski. Claims 24, 27 and 28 variously depend from claim 15 and, thus, also would not have been

rendered obvious by Joachimi, Aylward, Andrew and Savitski. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

II. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachment:

Request for Continued Examination

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